



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE.

EDITORIAL COMMITTEE: S. NEWCOMB, Mathematics; R. S. WOODWARD, Mechanics; E. C. PICKERING, Astronomy; T. C. MENDENHALL, Physics; R. H. THURSTON, Engineering; IRA REMSEN, Chemistry; CHARLES D. WALCOTT, Geology; W. M. DAVIS, Physiography; HENRY F. OSBORN, Paleontology; W. K. BROOKS, C. HART MERRIAM, Zoology; S. H. SCUDDER, Entomology; C. E. BESSEY, N. L. BRITTON, Botany; C. S. MINOT, Embryology, Histology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; WILLIAM H. WELCH, Pathology; J. MCKEEN CATTELL, Psychology; J. W. POWELL, Anthropology.

FRIDAY, APRIL 4, 1902.

CONTENTS:

<i>The American Morphological Society:</i> DR. M. M. METCALF.....	521
<i>Twenty Years of Section H, Anthropology:</i> DR. GEORGE GRANT MACCURDY.....	532
<i>College Work for Agriculturists:</i> PROFESSOR R. H. THURSTON.....	534

Scientific Books:—

<i>Roozeboom on Die heterogenen Gleichgewichte, Ostwald's Analytic Chemistry:</i> PROFESSOR WILDER D. BANCROFT. <i>The Engineering Index:</i> PROFESSOR MANSFIELD MERRIMAN. <i>Sanderson on Insects Injurious to Staple Crops:</i> F. H. CHITTENDEN.....	537
<i>Scientific Journals and Articles.....</i>	541

Societies and Academies:—

<i>Science Club of the University of Wisconsin:</i> C. K. LEITH. <i>Philosophical Society of Washington:</i> CHARLES K. WEAD. <i>Anthropological Society of Washington:</i> WALTER HOUGH. <i>The Geological Society of Washington:</i> ALFRED H. BROOKS. <i>New York Academy of Sciences: Section of Anthropology and Psychology:</i> DR. R. S. WOODWORTH. <i>Section of Astronomy, Physics and Chemistry.</i> DR. F. L. TUFTS. <i>The Academy of Science of St. Louis:</i> PROFESSOR WILLIAM TRELEASE. <i>The Colorado Academy of Science:</i> WILL C. FERRIL. <i>The Elisha Mitchell Scientific Society:</i> PROFESSOR CHAS. BASKERVILLE. <i>New York Association of Biology Teachers:</i> G. W. HUNTER, JR.....	542
--	-----

Discussion and Correspondence:—

<i>Movements toward Union among Geographers:</i> DR. W J MCGEE. <i>Baldwin's Social and Ethical Interpretations:</i> DR. GUSTAVO TOSTI. <i>Carnegie Institution.....</i>	549
--	-----

Shorter Articles:—

<i>Discharge from Hot Platinum Wires:</i> PROFESSOR C. D. CHILD.....	553
--	-----

Paleontological Notes:—

<i>North American Elephantids:</i> F. A. L....	554
<i>Current Notes on Meteorology:—</i>	
<i>The Dust Storm of March 9-12, 1901;</i>	
<i>Meteorological Charts of the Great Lakes;</i>	
<i>The Seismograph as a Sensitive Barometer:</i>	
PROFESSOR R. DEC. WARD.....	555
<i>Scientific Notes and News.....</i>	557
<i>University and Educational News.....</i>	560

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

AMERICAN MORPHOLOGICAL SOCIETY.

I.

At the annual meeting of the American Morphological Society, held at the University of Chicago December 31, 1901, and January 1 and 2, 1902, the following papers were presented:

The Physiological Zero and the Index of Development for the Egg of the Domestic Fowl, Gallus Domesticus: CHARLES LINCOLN EDWARDS.

From the study of 238 eggs distributed in 23 incubations of about six days each, and from the measurement of 59 unincubated eggs the following conclusions were derived:

1. The physiological zero, or the temperature below which there is no development, previously given by most authors at 28°, and by one at 25°, is established at the degree included between 20° and 21°.
2. The index of development is given for temperatures from 20°-21° to 30.75°.

The first phase shows a very gradual rise in the percentage of development of the embryo to 14 per cent. at 27°–29°, the primitive streak alone showing. The second phase, beginning with notochord, neural plate and groove, and mesodermic somites, presents an abrupt rise to 54.83 per cent. of normal development at 30.75°.

3. The normal average diameter of the blastoderm of the unincubated egg, as determined from the measurement of fifty-nine individuals, is 4.41 mm. with a standard deviation of 0.4792 mm. and a coefficient of variability of 0.1087.

4. The normal average diameter of the area pellucida of the unincubated egg as determined from the measurement of fifty individuals is 2.51 mm. with a standard deviation of 0.3382 mm. and a coefficient of variability of 0.1347.

5. From 136 blastoderms in which primitive streaks have not developed, the form of the area pellucida is 59 19/34 per cent. round, 12½ per cent. nearly round, 23 9/17 per cent. oblong and 4 7/17 per cent. oval.

6. The normal average volume of the egg, as determined from the measurement of 100 individuals, is 51.67 c.c., with a standard deviation of 4.8602 c.c. and a coefficient of variability of 0.0942. In 85 per cent. of fifteen unincubated eggs where the volume was noted the diameter of the blastoderm varies directly with the volume of the egg, but the variates are so evenly distributed about the average that the general averages of the measurements in this paper would not be especially affected by this element.

7. The introduction of successively higher stages, and the increased growth of blastoderms without primitive streaks as the temperature rises, together with a continued growth of the primitive streak with the non-appearance of other features of the embryo at a low temperature, 20°–21° to 27°–28°, would indicate a direct depend-

ence of ontogenetic organization upon warmth.

Differentiation without Cleavage in the Egg of the Annelid Chaetopterus pergamentaceus: FRANK R. LILLIE.

This phenomenon was observed in both fertilized and unfertilized ova. The essential point is briefly this: That by the action of certain solutions the eggs are preserved alive, sometimes for as long as thirty-six to forty-eight hours, although neither cytoplasm nor nucleus divides. During this period the cytoplasm slowly passes through certain well-defined phases of differentiation, the yolk accumulating in a dense mass in the interior and the peripheral cytoplasm becoming vacuolated and ciliated. The ciliated ectoplasm and the yolk-laden endoplasm are analogous to the ectoderm and endoderm of the trochophore, and the phases of differentiation resemble some of the normal processes; though the resulting object can by no stretch of the term be properly called a trochophore.

The solutions employed were sea water with the addition of KCl or CaCl₂, or both these salts. The eggs were left in the solutions for an hour and then transferred to sea water. If the solutions were above a certain density, the formation of the polar bodies was suppressed; but this did not interfere with the subsequent differentiation. During the period of time usually occupied by the cleavage the eggs were markedly amoeboid; in some cases (especially after CaCl₂) throwing out a bewildering number and variety of long pseudopodia, and actually creeping like amoebæ. All intermediate conditions between this and actual cleavage were observed. During this period, in typical cases, the nucleus became enormously enlarged, and some chromatin was diffused through the cell. Fusion of ova frequently took place, and, in solutions containing CaCl₂, large num-